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THIS WEEK'S FORUM: PAGES 21, 22, & 23

EDUCATION WEEK

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Is There a Teacher Shortage? It's Anyone's Guess

Absence of Reliable Data Casts Doubt on Studies

By Lynn Olson and Blake Rodman

The debate rages.

Last winter, the National Education Association announced that "public schools in the United States are facing a severe teacher shortage."

But the U.S. Bureau of Labor Statistics weighed in with a decidedly different view.

"Indications . . . are that no shortage of teachers will develop," a bureau analyst wrote, shortly after the N.E.A. released its report.

The American Federation of Teachers, the RAND Corporation, the National Center for Education Information, and numerous other players on the education stage have also weighed in on one side or the other.

The problem, according to many experts, is that there is not enough information to know which view is correct.

Despite the rush of media attention given to the teacher shortage in the past few years, data on the subject are so inadequate that a recent report by the National Academy of Sciences calls it the "statistical dark."

Asked to describe the data on which people are basing their projections, Leo Eiden, a senior program analyst with the federal Center for Education Statistics, said, "There are holes big enough to drive Mack trucks through."

More than half of the states collect some kind of data on teacher supply and demand, experts estimate. But fewer than a dozen conduct any sophisticated analyses.

Both state and federal data bases—and the interpretations based on them—have been trounced by critics as being grossly inadequate.

The federal government and many

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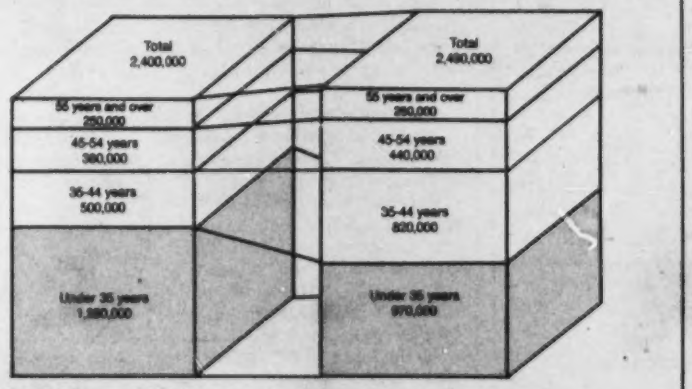
Teachers' Age Distribution, 1974 and 1984



Source: U.S. Department of Education

Creationism Law In La. Is Rejected By Supreme Court

Statute's Religious Intent Is Ruled Unconstitutional

By Tom Mirga

WASHINGTON—A Louisiana law mandating balanced treatment for the theories of evolution and creation in public schools violates the First Amendment's prohibition on government establishment of religion, the U.S. Supreme Court ruled last week.

In a 7-to-2 decision, the Court held that the state legislature's primary intent in enacting the law in 1981 "was clearly to advance the religious viewpoint that a supernatural being created humankind," and not to advance the cause of academic freedom, as the state maintained.

"The legislative history documents that the act's primary purpose was to change the science curriculum of public schools in order to provide an advantage to a particular religious doctrine that rejects the factual basis of evolution in its entirety," Associate Justice William J. Brennan wrote for the majority in *Edwards* v. *Aguilard* (Case No. 85-1513).

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In the Shadow of Disney World, a High School for Tomorrow

By William Montague

It sounds like a recruiting pitch for a well-endowed college: "Fully equipped marine-biology laboratory, modern computer center, solar-energy design center, industrial-robotics shop, and closed-circuit television system with not one, but two video-production studios."

In fact, these are only some of the futuristic facilities that will soon be available to about 2,000 high-school students in Florida's Orange County school district.

The students, residents of the booming suburbs of Orlando, will be the first to enroll in Dr. Phillips High School when classes begin this fall at its brand-new, $24-million campus.

Set amid the lush Florida landscape less than 10 miles from the Walt Disney World amusement park, the school has features that resemble the park's popular Epcot Center, a showcase for visions of tomorrow's technologies.

And like the Epcot Center, Dr. Phillips High School is a model of sorts, a demonstration of how today's schools can adapt to—and even anticipate—a changing world.

Will personal computers one day be as common in the classroom as chalkboards and erasers? Dr. Phillips is already wired for an electronic-mail network that can connect every terminal in the school. Will satellite transmissions eventually expand the scope of educational television? The school already has its own antenna dish. Will educational theorists decree a wholesale reduction in class sizes? Movable walls make it possible to tailor classrooms accordingly.

Unlike the Epcot Center, however, Dr. Phillips High is more than an imaginative exhibit. When the school opens in August, its 350,000 square feet of floor space will make it Florida's largest high-school campus. Its 101 faculty members will teach a full range of courses, including an advanced

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Legislatures, Districts Move To Raise Age For Kindergarten

By Anne Pavuk

Responding to concerns that the failure rate among kindergarten students may be rising, a growing number of state legislatures and school districts are requiring that children start school at a later age.

Proponents of the move argue that older children are better prepared—cognitively, emotionally, socially, and physically—to meet the requirements of curricula that have become more structured and demanding during the school-improvement movement of the 1980's.

"The demands in school are increasing tremendously," says Charlotte Garman, an education consultant for the Pennsylvania Association of Public School Principals. "Schools have begun to say either they will have to lighten up on the curriculum or raise the age" for school entrance.

State and district proposals to raise the entrance age have gained momentum from

Continued on Page 17

The Call for Choice: A Special Report

In a special 24-page pullout section, this week's edition of *Education Week* examines choice, one of the most controversial and fastest-growing developments in public education.

Built on the concepts of equal opportunity and open-market competition, the movement strives to give parents the right to select their children's schools from among a range of possible options.

Educators Are Implored To Stress Broad View Of Nation's Constitution—Its 'Warts and All'

By Robert Rothman

Several prominent jurists and historians, led by U.S. Supreme Court Justice Thurgood Marshall, have given food for thought this spring to teachers drafting lesson plans for next fall's bicentennial of the U.S. Constitution.

They have publicly stated reservations many educators may have held privately over the prospects of an uncritical celebration of the document and its framers.

In the words of Justice Marshall, such a celebration would, by paying no heed to the flaws of the original, "invite a complacent belief that the vision of those who debated and compromised in Philadelphia yielded the 'more perfect union' it is said we now enjoy."

"To the contrary," Mr. Marshall said in a speech last month to patent and trademark lawyers, "the government they devised was defective from the start, requiring several amendments, a civil war, and momentous social transformation to attain the system of constitutional government, and its respect for the individual freedoms and human rights, we hold as fundamental today."

But, according to many teachers and curriculum specialists interviewed last week, schools have anticipated such critiques and are stressing that the Constitution has evolved over time to include blacks, women,

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Publication Schedule

With this issue, *Education Week* suspends publication for part of the summer. An "extra" midsummer issue will be published on Aug. 5. The regular publication schedule will resume with Issue 40, dated Sept. 2.

IN SUMMARY

A Victory for Teachers
Ruling in a case that has been closely followed by educators' groups nationwide, a state judge has held that a mentor-teacher system in Rochester, N.Y., is not "harmful" to administrators. **Story on Page 5.**

A Delay on Desegregation Aid
The Education Department's failure to issue new rules on the reorganization of desegregation-assistance centers may delay their funding and force them to close temporarily. **Story on Page 10.**

Belting School Buses
The House Education and Labor Committee heard conflicting testimony last week on a proposal to withhold federal aid for districts failing to install seat belts on school buses. **Story on Page 11.**

A Budget Compromise
The House and Senate are expected to approve a compromise spending blueprint for fiscal 1988 that calls for a significant boost in federal support for education. **Story on Page 11.**

Reworking a Report
Reacting to charges that they "watered down" a report on the extent of lead exposure among young children, federal officials said last week that they would prepare a new summary of the findings. **Story on Page 12.**

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THE WEEK

STATES

321 Arkansas Districts Miss Reform Deadline

Nearly all of Arkansas's 333 school districts failed to meet the June 1 deadline for compliance with reform measures passed by the legislature in 1983.

But state officials said last week that only a handful of the delinquent districts may be forced to consolidate, as provided for under the law.

Only 12 districts met the deadline, according to Kay Williams, a spokesman for the education department. Since June 1, she said, the state has issued consolidation orders to 318 districts, and three other districts have volunteered to consolidate.

All but eight of the 318 districts issued orders, however, have been given an extended deadline of Aug. 1 to meet the standards, Ms. Williams said.

Three of the remaining eight districts have been told to start taking steps to consolidate. All three are appealing the orders. The Bright Star School District has obtained a court injunction to halt its consolidation temporarily, and the other two districts were scheduled to appeal their orders before the board on June 22.

Five districts are on a "critical" list, Ms. Williams said, which means they have until July 15 to demonstrate compliance with the law. It is doubtful, she added, that they will be able to do so.

Under the 1983 reform law, districts were required to meet a variety of standards, including: offering a minimum number of courses; increasing graduation requirements, from 16 credits to 20; limiting class sizes; providing elementary-school counselors; providing nursing services; upgrading staff inservice training; increasing the number of school days and teacher contract days; and having a specified number of library books.

Since the reform measures were adopted, voluntary consolidations have reduced the number of districts in the state by 34.

N.H. State Board Seeks Stiff Drug Penalties

The New Hampshire Board of Education, in a series of recommendations to legislators and law-enforcement officials, has proposed that the state impose stiff penalties on students convicted of drug- and alcohol-related crimes.

"We have namby-pambied on this issue too much," said Kenneth L. Paul, president of the board. "It's about time somebody calls a spade a spade. We're willing to stand up and say what we believe."

The board recommended that 16-year-olds be prosecuted as adults if they commit crimes involving alcohol or illegal drugs, and that the the driver's licenses of teen-age lawbreakers be suspended. In addition, it urged school officials to strengthen security measures to keep drug dealers off school grounds.

Critics of the recommendations have argued that they overemphasize punishment. But, according to Mr. Paul, the stance is justified.

"Maybe that's the problem," he said. "Maybe we haven't focused enough on" punitive measures.

The recommendations will be included in a booklet to be issued by the board later this year, which will outline steps parents, schools, and state officials can take to combat drug and alcohol abuse. The publication will address education and rehabilitation, as well as criminal penalties, the board president said.

DISTRICTS

Fla. Board Adopts Faculty-Integration Plan

The school board in Dade County, Fla., has unanimously approved a plan aimed at ensuring that all schools in the district have a racially balanced faculty by 1989.

Currently, 67 schools, about one-quarter of the district, are not in compliance with guidelines set forth in an agreement with the federal office for civil rights, said Octavio J. Visiedo, a district spokesman.

Out of a total teaching force of 14,000, he said, 287 white teachers and 37 black teachers will need to transfer to bring all schools into compliance.

The plan establishes incentives for voluntary transfers to targeted schools, including a one-time salary bonus and priority consideration for future promotions. It also makes efforts to meet faculty-integration ratios part of the performance evaluation of supervisory personnel.

If the plan does not produce the required number of voluntary transfers next year, Mr. Visiedo said, the district will begin negotiating with the local teachers' union to create a mechanism for mandatory transfers.

N.J. Principal Acquitted Of Assault on Teacher

A high-school principal praised by Secretary of Education William J. Bennett for his tough disciplinary policies has been acquitted of an assault charge filed by a teacher at his school.

Joe Clark, principal of Eastside High School in Paterson, N.J., was found not guilty of assaulting a social-studies teacher by the Paterson Municipal Court on June 10.

In charges filed April 27, the teacher, Peter Rendina, accused Mr. Clark of grabbing and pushing him during an argument that ensued when the principal ordered Mr. Rendina to leave the school grounds for the day.

Mr. Clark said last week that the incident had followed his suspension of Mr. Rendina for violating the school's dress code for teachers, not turning in plan books, and "developing a basically obnoxious and rebellious demeanor." The principal said he grabbed the teacher's arm and escorted him out of the school, but did not intend to harm him.

Mr. Rendina, who has transferred to an elementary school in Paterson, said Mr. Clark had given him no reason, "either in or out of court," for ordering him to leave the school.

The court ruled that Mr. Clark had not demonstrated "intent to do bodily harm," which constitutes criminal assault in New Jersey, according to his lawyer, Robert P. Swartz.

The high-school principal was praised in the U.S. Education Department's report, "Schools Without Drugs," for tightening discipline and curbing drug use and gang violence at Eastside High.

Youth Center Allegedly Deceived U.S. Monitors

A court-appointed panel in the District of Columbia is investigating charges that local youth-services officials tried to deceive federal monitors into thinking an education program that had ended months earlier was still in operation.

A week before a visit by monitors from the U.S. Education Department late last month, officials at the Oak Hill youth-detention facility added staff members and set up classrooms for a federally funded Chapter 1 compensatory-education program that had not held classes since February. The allegations, made in a *Washington Post* story this month, were denied by officials, who insisted they were not deliberately attempting to mislead federal authorities about the program's status.

"We don't know whether the allegations are true, but if they are, they are serious," said Michael Gerry, a lawyer serving as the education adviser to the three-member panel. It was created last year by a superior-court judge to oversee an improvement plan for the city's three youth-detention centers.

Jesse Williams, director of the city's Youth Services Administration, which runs the centers, acknowledged in the news report that a number of agency employees had been removed from their regular jobs and assigned temporarily to the Oak Hill program around May 21, five days before the monitors' visit. But he maintained that the staffing switch was a legitimate attempt to put the program "back on its feet."

Mr. Williams could not be reached for further comment last week.

The youth center received $173,133 in federal funds in the current fiscal year to hire eight people to run its Chapter 1 program.

Lack of Data Stymies Efforts To Predict Teacher Supply and Demand

Continued from Page 1

state governments do not report data on teacher supply and demand by geographic regions or subject areas. Neither do they know precisely how many certified or uncertified people are teaching particular classes from year to year, or how many teachers are misassigned at any point in time. And they do not keep detailed information on where the new teachers hired come from.

In addition, experts say, many state data bases are not automated or centralized to provide easy access to information. Most districts do not keep track of how their hiring plans change during the year, based on supply and demand. And no one knows the effects of teacher migration on estimates of supply.

Moreover, the very source of the information, school administrators and teachers, may not be providing accurate, consistent data. Responses may vary based on how and when the questions are asked. *(See story, page 15.)*

In the absence of complete and reliable data, conclusions are being drawn on what experts describe as disparate "bits and pieces" of information, anecdotes, and "personal beliefs."

"We are very much concerned about the erroneous conclusions that are going to be made," said Mr. Eiden.

The Academy's 1987 interim report on teacher supply and demand, commissioned by the National Science Foundation and the U.S. Education Department, cautioned that "fuzzy concepts and an absence of agreed-upon terminology" are fueling the controversy.

At the heart of the debate lie seemingly irreconcilable opinions about "quality" and human behavior: Who is qualified to teach? And what, if anything, will attract different groups of people to the profession?

16,000 Anecdotes

Based on estimates from the Center for Education Statistics, most agree that at minimum the nation will need to hire some 200,000 teachers a year for the next five years.

The debate really centers around beliefs about whether that need can be met.

> ***"You want to make sure that we don't tell millions of kids that there are going to be jobs out there, and then . . . not be able to use them."***
>
> *— Peter M. Prowda, Connecticut Education Department*

In addition, everyone agrees that there are current spot shortages in certain geographic areas and in certain subjects, and that this situation is likely to continue. But they disagree about how severe these shortages are.

The fact that teacher supply and demand appears to vary so widely from state to state and from district to district adds to the confusion.

Contradictory reports of a severe shortage in one location and a surplus in another could both be correct—and neither could provide a complete picture of the national scene.

"There are 16,000 different situations, and it's fair to say that no two are alike," said Dorothy M. Gilford, study director for the Academy's committee on national statistics. "This is why you get such different perceptions."

Said Mr. Eiden: "The anecdotal information you've been acquiring, is it true? Could be. But trying to jump from that to a number—it can't be documented."

"Taking local situations and trying to generalize will create problems, and it can't be done."

Politics and Money

In the absence of figures that everyone can agree on, politics and money are playing a large part in shaping projections of supply and demand.

Thus far, both national teachers' unions are predicting serious teacher shortages in the future, as is the RAND Corporation's center for the study of the teaching profession. In contrast, the Labor Department and C. Emily Feistritzer, a private education analyst, have insisted that no national shortage exists or is pending. That view has been endorsed by Secretary of Education William J. Bennett.

According to Arthur E. Wise, director of the RAND center, "To say that we have a crisis coming means that we must do something serious. So depending upon whether your main mission in life is the preservation of the status quo or your main mission is to try to bring about major change colors how you look at the facts."

"Those people who want to bring about change may have some reason to pay attention to data that indicate a problem," he said. "People who are more conservative, who want to believe that we can maintain the system as it currently is without infusing more money, have an incentive to see that there's no problem."

Constance F. Citro, study director for the Academy's committee on national statistics, agreed: "What it comes down to here is money. Do we want to spend money, or do we want not to spend money? Bringing out numbers can help make a case for or against that."

Said Debra Gerald, a mathematical statistician with the Center for Education Statistics: "Unfortunately, to try and explain teacher supply and demand, the public has tried to simplify very, very complex situations. We often get into trouble.

"Supply and demand is not a simple topic; it is a complex topic. You've got to be willing to discuss all the pieces."

'Counterproductive'

Developing better projections of teacher supply and demand is important for a number of reasons, experts say.

If people knew that there was a national shortage of teachers, for instance, it might sway them to enter the field. Similarly, if the shortage were severe enough, it might result in federal action—such as grants and other incentives to entice science majors to enter teaching.

National figures also help states know whether their problems are unique or part of a larger trend. This can, in turn, influence their policy decisions.

State-based information is even more important, according to analysts. States are the primary gatekeepers for teacher supply and demand. They determine teaching standards and provide incentives. And they are paying an increasingly large share of education costs.

In addition, most observers agree, the teacher labor market is largely state, regional, and local—not national—because teaching is not a particularly mobile profession.

Right now, no one knows what effects recent education-reform policies will have on the labor market. Accurate, reliable information to help policymakers shape their decisions is just not there.

But policies based on inadequate data, the Academy warns, "will be irrelevant at best and counterproductive at worst."

Inflated predictions of future shortages, others say, could cause too many people to prepare to teach.

"You want to make sure that we don't tell millions of kids that there are going to be jobs out there, and then have them trained to be teachers and not be able to use them," said Peter M. Prowda, coordinator of research services for the Connecticut Department of Education.

'Not Too Tricky'

Projections of a shortage are based on two components: the anticipated demand for teachers, and the expected supply of teachers available to fill that demand.

Estimates of demand at both the national and state levels are based primarily on projected student enrollment and on teacher-student ratios.

"That's not too hard to do, because basically you figure out how many kids are going to be in school," said Richard J. Murnane, professor of education at Harvard University. "It's a little tricky to make predictions about class size, but once you've done that, it's multiplication."

Almost everyone making national predictions relies on the estimate by the Center for Education Statistics that student enrollment will climb by approximately 2.5 percent each year from now until 1997.

Far trickier, everyone agrees, is estimating teacher supply.

According to the Academy, current estimates of teacher supply are "totally inadequate" and "so inaccurate" that they are "useless even in the short run."

Teachers now in the classroom represent the bulk of teacher supply. The first part of the picture, therefore, is trying to project how many people will continue to teach from one year to the next and into the future.

To determine that figure, statisticians estimate the "attrition" or "separation" rate—the number of people who will leave teaching either for retirement or other reasons.

Until recently, the Center for Education Statistics has based its national projections on a 6 percent attrition rate, computed in 1969—a rate that some say is so old it could not possibly be correct.

In contrast, for 1983-84, the Bureau of Labor Statistics calculated an attrition rate for elementary and secondary teachers of roughly 9 percent.

According to Linda Darling-Hammond, director of RAND's education and human-resources program, the difference amounts to 500,000 teachers between now and 1992-93.

The federal center's projection that 1 million teachers will need to be hired between now and then—or 200,000 a year—rests on the 6 percent attrition rate. Ms. Darling-Hammond believes the correct number is closer to 1.5 million.

Although RAND favors the 9 percent figure—based on data it has gathered from a number of states—the Center for Education Statistics argues that it is too high.

According to center officials, the Labor Department included in its calculation all those who described themselves as teachers—including part-time personnel and private-school teachers—and this artificially inflated the results.

For these reasons, the Labor Department chose to use the 6 percent figure when it predicted that there would be no teacher shortage.

Estimates also differ on the question of whether the attrition rate will remain relatively stable or surge in the coming decade.

According to RAND officials, an aging teacher force—whose average age is now 41—means that the number of retirements will climb in the future. That fact, combined with an influx of new teachers, who have a traditionally higher turnover rate, could result in an increase in attrition within the next 10 years, they say.

But Daniel Hecker, a labor economist with the Bureau of Labor Statistics, disagrees.

"The present pool of teachers aged 45 and older is only slightly larger than it was in 1974," he wrote. "Therefore, the number of retirements in the next decade should be about the same as it was in the last one; no surge is likely."

"So the average age has gone up," he said. "It is the number who are within 10 years of retirement that really counts."

Although Mr. Hecker conceded that the retirement rate may increase after 1995, he noted that making projections more than 10 years into the future is risky.

Estimates of attrition at the state level vary from 4 percent to 12 percent, according to Ms. Gerald of the Center for Education Statistics. She also noted that each state's definition of attrition varies, as does the way it computes the figure. Many states do not publish attrition rates at all.

Recent studies also indicate that attrition rates vary by age, experience, and subject taught. Thus, using one rate to predict shortages across states, fields, or grade levels may not be accurate.

New Supply

After determining how many of today's teachers will leave the profession, the remainder of the supply estimate is based on the "new supply." This involves determining the willingness to teach of people not now doing so—a nearly impossible task at present.

Included in this pool are new graduates of teacher-education programs. It also theoretically includes: other newly certified graduates with non-education majors; those certified through emergency and alternative routes; people in other professions who may decide to become teachers; and certified teachers who left teaching for one reason or another or who never entered the profession.

"Each of these groups," notes the National Academy of Sciences report, "has a very different probability of being attracted to teaching under current conditions and of responding to particular policy initiatives aimed at attracting teachers. Yet virtually nothing is known about these differences."

"Virtually none" of the national or state models of teacher supply and demand provides a "serious analysis of these various types of potential teacher supply," it argues.

Fears of a teacher shortage have been fueled in recent years by projections from the Center for Education Statistics that the proportion of college graduates with a major in education has declined precipitously since the early 1970's.

Based on the center's figures, for example, the N.E.A. has concluded that "by 1993 the need for new teachers will exceed the number of new teacher graduates by 37 percent."

But that figure may be misread-

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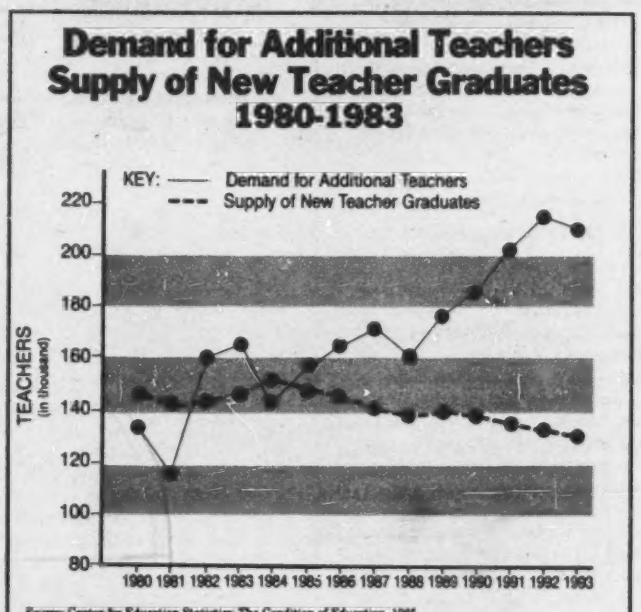

Graphs such as this, which portray a widening gap between the demand for teachers and the supply of new teacher graduates are misleading, experts say. Recent teacher-education graduates make up only one slice of the potential teacher-supply pool.

Continued from Preceding Page

ing. For one thing, said Ms. Darling-Hammond of the RAND Corporation, many new teacher-training graduates never teach or become certified, and thus should not be included in the supply pool.

On average, she said, only about 75 percent of those trained to teach actually enter teaching.

More important, the supply of new teacher-training graduates may account for only a fraction of the total teacher supply.

Many states, for example, enable college graduates who major in subjects other than education to become certified as teachers, if they take the necessary "add on" courses. This enlarges the supply pool of new teachers without prior experience.

Because the center's projections of teacher-training graduates repeatedly have been misconstrued to represent the entire supply of potential teachers, said Ms. Gerald, the center has decided to stop publishing the projections.

"It's a very important figure," she said, "but it is misused by people."

The 'Phantom Workforce'

An even more controversial component of the supply equation, however, is the "reserve pool." This is the number of certified people who have left teaching or who have never taught. There is no national figure for how many people are in this pool.

In fact, so little is known about the reserve pool that one researcher has referred to it as a "phantom workforce."

According to Mr. Hecker, divergent views about how large the reserve pool is, how quickly it can be replenished, and how likely these people are to return to teaching "are probably the major reason" for the different estimates of teacher shortage.

Officials at the two teachers' unions say they do not believe people in the reserve pool are likely to return to teaching, unless the profession becomes substantially more attractive both in pay and working conditions.

"I just don't think this group is going to fill what I see as a very large void," said Jewell C. Gould, director of research for the American Federation of Teachers. "It may help us—I don't want to ignore it—but we don't see it as a replenishing source of teachers."

Said Howard Carroll, a spokesman for the N.E.A.: "We don't see districts hiring from the huge pool of former teachers. If they were, we wouldn't have the present situation."

"We are skeptical about these people coming back into the profession unless the working conditions are improved," he said.

This is particularly true, union officials suggest, because of expanding job opportunities for women and minorities, who may make up a large part of the reserve pool.

In contrast, Mr. Hecker and Ms. Feistritzer predict that large numbers of people in the reserve pool will return to teaching.

Mr. Hecker said: "A substantial proportion of those who leave are people who are leaving temporarily for a number of reasons. They are not permanent leavers, in that they come back after a period of time."

In a retrospective study of Michigan teachers—based on data that followed the careers of newly hired teachers from 1972 through 1984—Harvard's Mr. Murnane found, for example, that one-fourth of those who were still in the teaching force 11 years after entry had left teaching for a while and then returned.

It now appears that a surprisingly large proportion of the new teachers hired each year are coming from the reserve pool.

"I don't think that's been appreciated until the last few years," said Stephen M. Barro, a consultant for the Academy's study and director of SMB Economic Research Inc. "In some states, more than half the 'new teachers' hired are former teachers."

A Connecticut survey, for example, found that in September of last year, 76 percent of the newly hired public-school teachers had prior teaching experience. Figures for New York State are similar.

"I think the real concern," said Ms. Gilford of the Academy, "is that such a large number are being hired from that reserve pool, and we don't know when it is going to be exhausted. We don't know anything about it."

The pool includes mothers on maternity leave; teachers who switched professions; those who disliked teaching and left; those who have moved out of state; people who have since retired; and people who lost their teaching jobs or failed to find one during periods of surplus. No one knows which, if any, subgroups will respond to increases in the demand for teachers or at what rate.

"Personal beliefs really come into play when you talk about the reserve pool," said Ms. Darling-Hammond. "[Mr. Hecker's] argument really rests entirely on his personal beliefs about the return rate, because there are no data."

Who Qualifies?

Estimates of who might enter teaching beyond the "reserve pool" are based on even less knowledge.

Both Mr. Hecker and Ms. Feistritzer consider all college graduates to be potential teachers—and therefore part of the supply pool. As the demand for teachers increases, they predict, many of these people will flock to teaching.

Mr. Hecker, in particular, points out that, given one-year teacher-education programs, any college graduate is at most one year away from a teaching certificate.

He also estimates that there are between 5 million and 6 million college graduates in jobs that do not require a college degree. "We're talking about a tremendous number of people," he said. "If the jobs were available, it is hard for me to believe that a substantial portion of them couldn't be attracted to teaching."

In addition, Ms. Feistritzer notes, the proportion of adults with college degrees is increasing. In 1970, she said, 1 in 10 adults had a college degree. Today, 1 in 5 do, and that proportion is rising.

> ***"We don't see districts hiring from the huge pool of former teachers. If they were, we wouldn't have the present situation."***
>
> *— Howard Carroll, National Education Association*

Others, including the leadership of the N.E.A. and the A.F.T., say it is unlikely that many college graduates will be attracted into teaching under present pay and working conditions. This is particularly true, they note, because the number of people in their late teens and early 20's will be decreasing, just as the competition for their services among public- and private-sector employers will be rising.

Ms. Feistritzer agreed that the 18- to 24-year-old population would continue to decline, but said that "the people who are going to college today are not just between 18 and 24."

"We just have a much larger college-educated adult population that is far outstripping the young population and will continue to," she said. "And I think this will, and already does, work to teaching's advantage."

A Question of Quality

In large measure, the debate about who is in the teacher-supply pool centers on teacher quality, which many claim is at the crux of all disagreements.

"A bigger piece is the quality-supply interaction that most of these surveys can't get at or don't ask about," said Ms. Darling-Hammond of RAND. "You can always fill vacancies. Forty-six states have emergency-certification allowances. Another 27 have alternative-certification routes, which essentially greatly reduce the amount of teacher training necessary to walk into a classroom and teach."

Ms. Feistritzer, she noted, "doesn't believe in certification as a measure of quality, so in her report, when she found massive use of uncertified teachers, she did not consider it an indicator of shortage. But you've got to use something."

Said Ms. Feistritzer: "To equate certification with quality is misleading. The way we currently certify teachers does not give us any measure of a person's qualification to teach."

"The biggest gap in the data base," she added, "is criteria for determining what constitutes competence to teach."

The argument is a key one, said Mr. Barro, because the "supply of teachers is not a natural phenomenon; it's also determined by the rules that each state makes up" regarding certification.

Agreed Mr. Wise of Rand: "How big the supply is depends on the definition of what a teacher is. That's also why you get different answers and opinions. You can create whole new pools of teachers instantly by dropping your requirements for the definition of a teacher, or changing the defini-

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Federal Statistics Center Plans New Surveys on Teacher Staffing, Mobility, Attrition

The federal Center for Education Statistics has just finished field-testing a new series of "Schools and Staffing Surveys" that experts predict will provide far better estimates of teacher supply and demand than have previouly been available.

For the first time, the surveys will enable the federal government to make projections by subject area, grade level, and geographic location, and to conduct detailed analyses of teacher mobility and attrition.

In addition, they will provide a better picture of teachers' working conditions and of the quality and qualifications of the teaching force.

Do Not Subtract

The interwoven group of surveys will go to district officials, school principals, and teachers. In addition, a longitudinal follow-up will track a subset of teachers who have left the profession.

According to Linda Darling-Hammond, a researcher with the RAND Corporation, which helped design the instruments, the surveys will provide information on the number of people who are leaving teaching and on "where they go, what their plans are to return, and what types of teachers they are."

The surveys will also supply data on teachers' preparation, their qualifications, and their assignment or misassignment to particular subjects.

Funding for the new surveys is now under consideration by the Congress. Officials of the Center for Education Statistics say they hope to carry out the project on a full scale beginning in January.

According to Paul Planchon, acting director of the center's division for elementary- and secondary-education statistics, the surveys will cost approximately $6.5 million for each two-year cycle.

"Until we get all these data," said Debra Gerald, a mathematical statistician with the center, "no one should ever subtract supply from demand and determine if there is a shortage."

The surveys appear likely to address some of the concerns about previous federal projections expressed in an interim report on teacher supply and demand conducted for the Education Department and the National Science Foundation by the National Academy of Sciences.

That report criticized the statistics center's projections on a number of counts. In particular, it said, the center failed to disaggregate data by subject area or geographic region, and wrongly limited estimates of teacher supply to recent graduates of teacher-education programs.

State Surveys

In addition to efforts to improve the quality of statistics at the national level, several groups are trying to develop a better understanding of state-level data.

In the second part of its 30-month project, the Academy is conducting case studies of mathematics and science teachers in a small sample of school districts to find out why they entered teaching, how long they might stay, and possible reasons for leaving.

The Academy is also surveying states to find out what kind of data on teacher supply and demand they collect, and how they use it.

In addition, the Council of Chief State School Officers is conducting a study to determine what information states have available to predict teacher supply and demand, how they collect it, and whether they analyze it.

"There are probably not too many states that have gone into this very deeply," said Rolf K. Blank, who is conducting the study. Some states are not worried about teacher shortages, he said, and so do not analyze the available information. But approximately a third of the states would like better data, he estimated.

"A lot of them are looking to the federal level to do this," he said. "I think some of them, if they had federal data available, broken down by state, would use it."

The Reserve Pool

According to Peter M. Prowda, coordinator of research services for the Connecticut Department of Education, most states can draw on their teacher-certification files and teacher-retirement systems for the basic data they need to compute estimates of supply and demand.

"The question is how much you keep on a computer file," and whether the state makes use of it, he said.

"Our files are not data-rich, but we're able to analyze the living daylights out of them."

Both Connecticut and California are conducting detailed studies designed to give state officials better information about their teacher-reserve pools, in particular.

Connecticut is surveying a sample of people who were certified but did not get jobs to find out where they applied, whether they think they will be looking for a teaching job in the coming year, and what they are doing now.

The state is also surveying a sample of former teachers to gather similar information.

In California, meanwhile, officials are contacting a sampling of people certified in mathematics, the life sciences, or the physical sciences in the past three years. Respondents are being asked whether they are teaching, what is likely to keep them in the field, and, if they are not teaching, why not.

A larger, but similar, survey, involving a sample of the 1.5 million people currently holding teaching credentials in the state, is also under way.

"My sense is that state-level officials are beginning to pay more attention to monitoring teacher supply and demand after decades of neglecting to monitor it," said Arthur E. Wise, director of RAND's center for the study of the teaching profession.

"But for the most part, the systems are at a crude and unsophisticated level, often producing results which may well be misleading."

"There's a tendency to rely to too great an extent upon surveys of local superintendents," he explained. "And when you do that, you find out what's going on this year. You do not find out what's going to go on next year or the year after."

Mr. Wise also said that school administrators may have incentives to under-predict teacher shortages and misassignments. "School officials and state officials have a built-in incentive structure for suggesting that everything is under control," he said.

"One big question," added Mr. Blank, "is how many people do you have who are currently teaching who are not qualified to teach what they are doing?"

"That is a big part of supply and demand," he said. "One of the major reasons that you get different estimates is if you're asking just whether positions are filled, or whether you really have a qualified teacher."

—L.O. & S.R.